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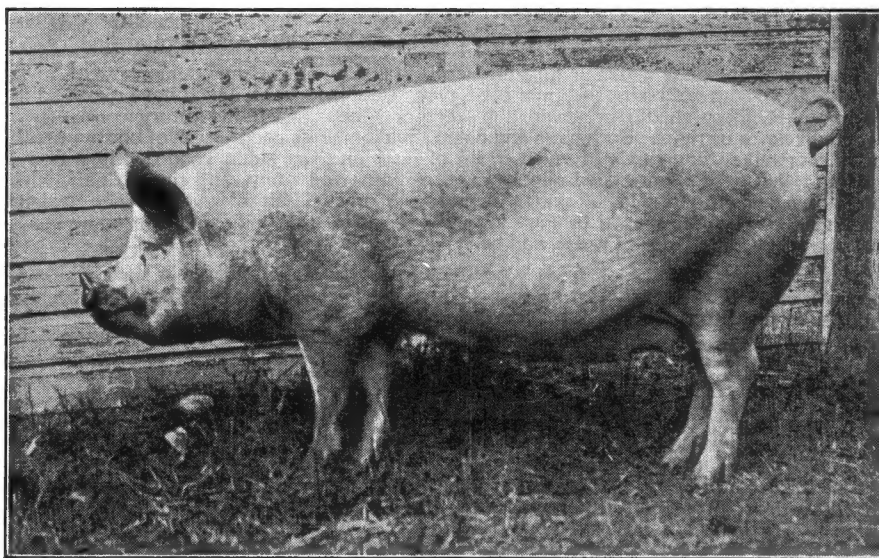
Bulletin No. 83

UNIVERSITY OF SASKATCHEWAN
COLLEGE OF AGRICULTURE



Swine Production in Saskatchewan

Contributed by
DEPARTMENT OF ANIMAL HUSBANDRY



A Yorkshire gilt showing breed character, quality and scale.

SASKATOON, SASK.

Swine Production in Saskatchewan

By J. W. G. MacEWAN

THE pig population of Saskatchewan in 1936 was placed at 664,600, and of Canada 4,138,600 head. Pigs have been produced in all farming districts of the province, although the greatest concentration at the present time will be found in the Park Belt, where grain feed supplies have been most certain. Under average conditions barley, marketed through pigs, will give a substantially better return per acre than when sold on the grain market, and, over a period of years, pork production has been distinctly profitable to Saskatchewan farmers.

Pig raising will be most appropriate and profitable on those farms where some milk by-product, such as skim milk or buttermilk, will be available to supplement the grain feed. In Canada and other countries, the most progress in pork production has been made in those sections where some dairying is carried on, although the absence of supplies of dairy by-products need not prevent moderate production.

Canada's favorable position in relation to the British bacon market warrants a breeding programme based on substantial volume, steady supplies and the best quality.

SELECTION OF SOWS AND BOARS FOR BREEDING

For the majority of those about to establish herds, grade sows and pure bred boars would seem the logical choice, although for a minority made up of individuals who have experience and keen interest in breeding, pure bred herds would be appropriate. In any case, foundation stock should be selected with care, and the full realization that those characteristics which are associated with utility are in a great measure hereditary. Colour, size, constitution, strong bone and feet, desirable heads, length, milking qualities, size of litter, early maturity, ease of feeding, number of teats and temperament are hereditary, as are also such undesirable characteristics as swirls, cryptorchism, and scrotal hernia.

It is best to select boars or gilts from robust stock which have demonstrated their utility. In the case of boars and pure bred gilts, those from sows which have qualified in Advanced Registry should be given a preference because their hereditary constitution is more likely to be right. Both sows and boars should possess good length of body, smooth shoulders, well sprung ribs with even width of back and flat sides, good depth of body, wide and well fleshed loin, good development of hams and rump, and smooth hair, with total absence of wrinkling in the skin. Strong, clean bone is desirable, while strong straight pasterns and normally shaped feet are very important to long and useful life. The heads should possess abundance of width and be typical for the breed.

In boars one should look for a good measure of masculinity, and in sows a corresponding degree of femininity is desirable. The number of teats will vary from 10 to 16, and those sows having the higher number should be favored. The temperament of the sows is especially important; those of a wild and nervous disposition are likely to kill more of their pigs at farrowing time and may be poorer milkers.

BREEDING POLICIES

Canadian producers should consider only the bacon breeds, and of these the Yorkshire has proven most suitable, and obviously most popular. The most common breeding policy consists of grading-up by the continued use of boars of the same breed, thereby obtaining pigs which are almost of pure breeding. This method has certain advantages in addition to simplicity. Some have observed, however, that crossbred pigs made somewhat better feeders than pigs of pure breeding, and there are times, when crossing to obtain market pigs can be accomplished without additional cost or overhead, that the practice would be warranted. Yorkshires and Tamworths can be crossed without serious departure from approved bacon type, and when such a cross involves parents of pure breeding, the offspring will be white in colour. It is doubtful if any other breeds should be considered.

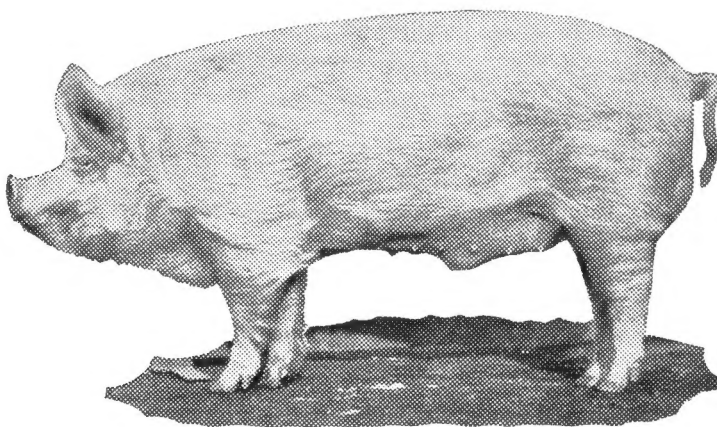
The spring is the natural farrowing time, and the majority of litters are born at that season. Where fall litters have been raised successfully, however, they have been profitable and sound reasons can be advanced for placing farm pig production, partially at least,

on the "two litter per year" basis. Overhead costs per unit of production will be considerably lower where sows are bred for autumn as well as spring litters, and furthermore, the bacon market, both export and domestic, calls for better seasonal distribution of bacon and pork.

While it may be argued that fall pigs which are fed out under greater confinement, and in the absence of pasture, will make more costly gains, it is equally true that fall litters are slightly bigger on the average, and that the price received for them is usually stronger than for the spring born pigs sold during the period of heavy marketings. Saskatchewan experience has led to the conclusion that where fall pigs are born before the middle of September, and where some skim milk or buttermilk is available for supplementing the grain feed, these litters should be both practicable and profitable.

MANAGEMENT OF THE BOAR

Young boars should be fed to develop the maximum amounts of muscle and bone, and to that end reasonably generous rations, rich in protein and mineral matter, should be provided. Moderate exercise and sanitary quarters are conducive to the best breeding efficiency.



Blonde Beau 7-162795—A Saskatchewan bred Yorkshire boar, grand champion at the Royal Winter Fair, Toronto, 1936.

For boars past four or five months of age a grain ration constituted of equal parts ground wheat and oats, or equal parts shorts and ground barley, or two parts ground barley and one part of ground oats, would be suitable, and with each of these an allowance of skim milk, buttermilk or tankage should be provided as a protein supplement. Between one and two pounds of the milk product for every pound of grain fed, or between three and six per cent. of tankage or meat meal would furnish the desired balance in the ration. The exact volume of feed to be furnished daily will depend on many factors, including size and condition of the boar, the appetite and the nature of the feed. Feeding twice daily, an amount which will be cleaned up in about 20 minutes might be given at each feed, and adjustments made to keep the boar in a medium state of fatness.

Well grown boars may be used for service from the age of eight months, but until the boar is a year old, he should not be used on more than 15 or 20 sows. In the case of older boars the number of sows bred annually might be 50 or more depending on the length of the breeding season or seasons. A boar should not be permitted to breed more than one sow a day, and he should not under any circumstances be allowed to run with the sows during the breeding season.

It is highly important that the boar's feet be kept trimmed, and that the tusks be removed when they are large enough to do injury. The removal of the tusks is not a difficult operation, but necessitates making the boar secure (a noose can be placed over the upper jaw, back of the tusks, and the rope tied to a post), and cutting the tusks close above the gums by means of a pair of bolt clippers or by means of a cold chisel and crow-

bar. By the latter arrangement the crow-bar is held against the base of the tusk on one side, while the tusk is broken by a blow to the cold chisel held against the opposite side.

BREEDING

The period of gestation in sows is about 114 days, hence to obtain a middle of April litter, the sow should be bred about the 21st of December. The period of oestrus, or heat, in sows lasts for about three days, and recurs at intervals of about 21 days. Sows will come in heat about four or five days after farrowing, but the percentage of conceptions to services at that period is very small. The next period of heat for those sows which have recently farrowed will be about five days after the young pigs are weaned, and if conception does not occur, the heat periods will recur at regular intervals of about 21 days. It has been observed that service during the latter part of the heat period is most conducive to conception.

WINTER CARE OF BROOD SOWS

The strongest and best litters are to be expected from sows which have been maintained in healthy condition and in a medium state of fatness. Gilts which are bred to farrow at one year of age require feed for their own growth and development as well as the development of the foetal litter.

Expensive buildings are not necessary for wintering brood sows. Sheds constructed from poles and straw, and which are draught proof and well bedded, are very satisfactory. A small doorway on the south side may be left open, and the sows fed outside to insure regular exercise. Some breeders make a practice of feeding the sows some distance from their sleeping quarters, as a guarantee against lack of exercise.

The kind and amount of feed given to the pregnant sows will largely determine their condition. Ground oats which are considered rather high in fibre for young pigs, would make a suitable basis for rations of the older sows where maintenance is the chief consideration. Ground barley or wheat could be fed in amounts ranging up to one half of the total grain, with the ground oats. In the absence of oats, one quarter of bran and three quarters of ground barley would be satisfactory, if fed in correct amounts. Between one and two pounds of buttermilk or skim milk for every pound of grain fed daily, or about four or five per cent. of tankage, should be included in the pregnant sow's ration, to ensure a desirable balance, and provide the feed ingredients required by the developing litter. From five to eight pounds of grain, fed daily, in two feeds, will meet average requirements during the winter months.

A small forkful of well cured sweet clover or alfalfa hay thrown to the sows each day during the winter months may serve as a safeguard against certain disorders. The provision of sweet clover or alfalfa as hay is preferable to the meal form because it permits the sows to eat the choicer parts and reject the fibrous portions which are decidedly less suitable.



Showing the type of straw shelter which has given good service for wintering sows. (Partially opened to show construction).

MINERAL SUPPLEMENTS FOR SOWS

Of the mineral supplements for sows, consideration should be given to common salt, limestone and iodine. The salt requirement can be met by mixing $\frac{1}{4}$ of 1% of common salt in the grain or $\frac{1}{2}$ pound of salt in 100 pounds of grain. The experience of three consecutive winters with the sow herd at the University of Saskatchewan has shown that those sows which have received a supplement of 1% of ground limestone in the grain ration had superior litters and weaned a higher weight of pigs than those receiving no limestone.

PREVENTION OF HAIRLESS LITTERS

The prevalence of hairless litters in certain districts reflects an iodine deficiency; losses from this cause can be prevented by feeding some potassium iodide during the latter two or three months of pregnancy. It is suggested that one ounce of potassium iodide be dissolved in one gallon of water and each sow given about a tablespoonful of the liquid on the feed or in the drinking water every second day.

FARROWING TIME

It is advisable to place the sow in her farrowing quarters several days before her time is up. If the weather is cold, the sows should farrow inside where some artificial heat can be supplied if necessary. The preparation of the farrowing pen deserves special attention, and where possible a guard rail should be provided to reduce the danger of loss of young pigs by crushing. Such a rail should be placed along the wall sides of the sleeping platform, and be about eight inches from the floor, and the same distance from the wall. Metal piping is frequently used to make the guard rail, although eight inch plank placed edgewise to the wall and eight inches from the floor will serve the purpose.

The pen should be bedded, either by supplying a small amount of cut straw in which the young pigs will not become entangled or hindered in escaping as the sow is about to lie down, or by bedding generously with the long straw. The latter method may be preferable in cold weather.

The ration should be made sloppy and laxative for a few days, both before and after farrowing. Shorts might be worked into the ration to advantage at that time.

As the pigs are delivered, they should be removed quietly, rubbed dry and placed in a covered box until farrowing is completed, when the young ones would be returned to the sow to nurse, and if the sow is quiet, to remain with her. It is considered advisable to remove the small tusks or canine teeth of the new born pigs with a pair of pinchers. Such a precaution will prevent the young pigs from injuring each other while nursing, and also prevent laceration of the sow's teats.

As the sow recovers fully from parturition, the ration should be increased and adjusted to ensure a good flow of milk. It is usually safe to feed all the grain that the sow will clean up at this time. One rule which has been found satisfactory provides for feeding a pound of grain daily for every nursing pig, with a minimum of eight pounds daily. A mixture of equal parts crushed oats and barley or a mixture of crushed barley and shorts would be suitable, but should of course be supplemented with skim milk or some tankage. The use of sour milk or buttermilk at this time has been supposed by some to cause scouring in the young pigs, but the danger, in the light of experience, seems remote. Slop feeds are preferable to dry feeds for the sow in milk.

Direct sunshine, access to clean black earth and an opportunity to eat a little meal should be provided for from the age of one or two weeks. A creep may be constructed which would permit the young pigs to eat some special feed such as sifted oat chop and skim milk or shorts and skim milk.

PREVENTION OF ANAEMIA

It is of extreme importance that dirt sods or some other carrier of iron be provided where young pigs are not running in paddocks. Otherwise anaemia with heavy losses may be anticipated. Preventive measures should continue from the age of ten days or two weeks to weaning time. While the provision of earth or dirt sods will usually serve adequately in prevention of this nutritional deficiency, it is often advisable to increase the iron content of the earth placed before the pigs by sprinkling it with a solution of ferrous sulphate. From a solution made by dissolving two ounces of ferrous sulphate in a gallon of water, six or eight tablespoonsful might be sprinkled over the small shovelful of dirt which is placed daily before each litter.

REGISTRATION OF PURE BRED PIGS

Male pigs not to be retained for breeding should be castrated at between four and six weeks. Pure bred pigs which are to be registered must be identified before weaning,

and in the case of Yorkshires, identification must be by tattooing, and the tattoo brands approved by the National Live Stock Records. The identifying herd letters should be tattooed in the right ear and the serial number and year letter in the left ear. Weaning should be accomplished when the litter is seven to eight weeks old.

FEEDING THE WEANED PIGS

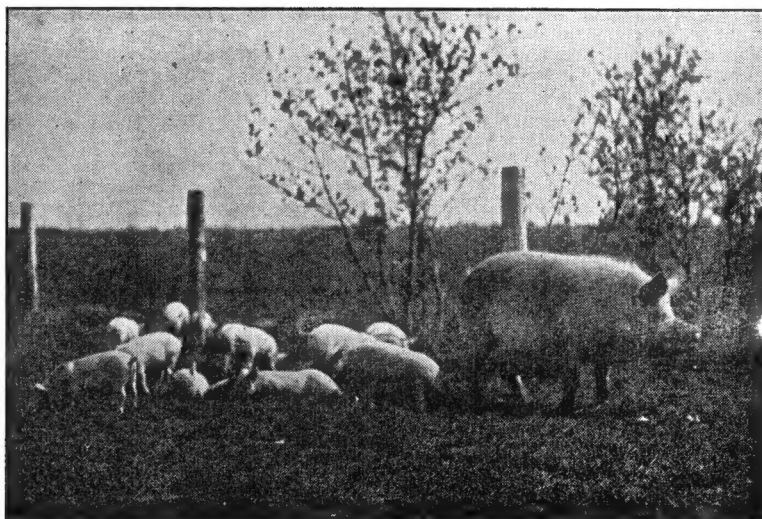
A good ration for newly weaned pigs would be characterized by low fibre content and a high level of protein provided preferably by skim milk, buttermilk or tankage. Whole or ground oats do not make a good basis for such a ration on account of the high percentage of fibre in the hulls, although it has been observed that young pigs given whole oats will separate the hulls from the contents, and reject the former. Young pigs are unable to digest more than a minimum of fibre, and it is thought best to use sifted oat chop (hulls removed), shorts or coarsely ground wheat, as the basis for these animals, and to supplement, where possible, with about two or two and one-half pounds of skim milk or buttermilk per pound of grain feed, or in the absence of the milks to add eight to ten per cent. of tankage to the grain mixture.

Exercise and moderate amounts of direct sunshine should be provided regularly. Those to be marketed and those for breeding purposes might run together for a month or two after weaning, when the commercial pigs would be restricted to closer quarters and fed more heavily.

FEEDING MARKET PIGS

As a general policy, pigs should be "grown out" as much as possible during the month or two after weaning, and then placed on heavier feeds which will make the best degree of finish at about 200 to 210 pounds. Accordingly, narrower nutritive ratios, or higher levels of protein would be appropriate during the earlier periods of feeding. There is the greatest need for bone and muscle building constituents during the first couple of months after weaning. Young pigs, compared with older ones, make smaller but more economical gains.

Experiments have shown that complicated grain mixtures are not necessary to success in feeding pigs for market; simple mixtures and single grains carefully supplemented have given excellent results. The cereal grains which form the basis for practically all pig rations have many characteristics in common, being low in protein and mineral matter and high in carbohydrates. The by-products of certain of these are different, but of the whole grains such as wheat, barley and oats, no combination of them will furnish the level of protein and mineral matter required by growing pigs. There may be some merit in mixing grain feeds, but it is clear that the use of a single cereal such as barley or wheat, when



A sow with litter in healthful environment

properly supplemented would give better results for pigs than any combination of cereal grains without the supplements.

Of the common cereals, oats, on account of the high fibre content, is probably the least suitable for growing and fattening pigs. Ground oats may be fed as a minor proportion of the grain along with ground wheat or ground barley to good advantage. Because wheat is singularly low in fibre, a mixture of wheat and oats, when the latter did not exceed 50% by weight, would carry a fibre level which would not be too high. Two parts of ground wheat or ground barley and one part of ground oats represents a combination which might find wide use. Wheat and barley are almost interchangeable in pig rations.

The weanling pigs, as already shown, should receive a comparatively high proportion of protein supplement, but as the animals approach market weight the level of protein could be reduced with economy. For example, it is suggested that two and one-half pounds of skim milk per pound of grain, or about ten per cent. of tankage, be fed to the weanlings. These amounts might be lowered steadily until the pigs which weigh 150 to 200 pounds are getting about half a pound of milk per pound of meal or two per cent. of tankage. These lower levels of protein are less conducive to growth and more conducive to fattening. These general principles are embodied in the suggested rations shown in the accompanying table.

RATIONS SUGGESTED FOR GROWING AND FATTENING PIGS

Weanlings to Three Months	
Sifted oat chop supplement $2\frac{1}{2}$ lbs. of skim milk or butter- milk per lb. of grain, or 10% of tankage.	2 parts ground wheat or barley 1 part ground oats supplement 2 lbs. of skim milk or buttermilk per lb. of grain, or 10% tankage.
Three to Five Months	
Ground wheat or barley supplement $1\frac{1}{2}$ lbs. skim milk or buttermilk per lb. of grain, or 6% of tankage.	2 parts ground wheat or barley 1 part ground oats supplement $1\frac{1}{2}$ lbs. skim milk or buttermilk per lb. of grain, or 6% of tankage.
Five to Seven Months	
Ground wheat or barley supplement $\frac{3}{4}$ to 1 lb. of skim milk or butter- milk per lb. of grain, or 3% of tankage.	3 parts of ground wheat or barley 1 part of ground oats supplement $\frac{3}{4}$ lb. skim milk or buttermilk per lb. of grain, or 2% of tankage.

PREPARATION OF FEED

In trials conducted at the University of Saskatchewan, it was shown that grinding barley to a medium state of fineness increased its feeding value for pigs by about 16%. It is considered best to grind all grains for pigs, wheat to a coarse state, barley medium, and oats fine. Soaking for 36 to 48 hours was found to be worth while where the whole grains could not be ground.

The soaking of ground grains does not appear to avail any special advantage, although the policy of feeding the ground grains in a wet state seems sound. The pigs relish the moistened or wet feed more than the dry, and there is the added advantage, when feeding is done outside, that less is lost by wind.

The practice of cooking grains for pigs is of doubtful value, and in most cases has failed to compensate for fuel and labour. There are some feeds such as potatoes which are definitely benefited by cooking.

SELF FEEDERS

The self feeder is a labour saver, and may be used with some success in finishing market pigs, but is not recommended for breeding stock. The use of the self feeder may be expected to produce maximum gains and early finish on the pigs, but has one great drawback; the grain requirement per cwt. of gain in weight is definitely higher than when careful hand feeding is the practice.

GREEN FEED

The best use of green feed or pasture should save between 10% to 25% of the grain feed. While pigs have not the same capacity for pasture as the strictly herbivorous animals, they can make good use of limited amounts of it. They may be permitted to graze in small pasture paddocks or the green forage may be cut and carried to them. The latter arrangement involves more work on the part of the caretaker, but is conducive to faster and more economical gains, and has demonstrated a good degree of merit.

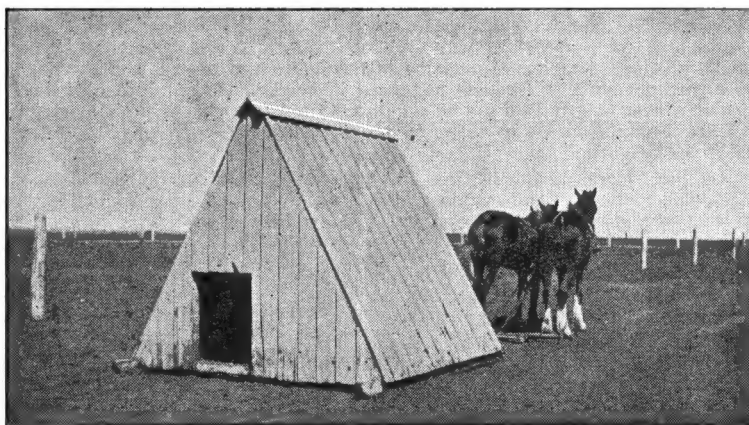
Alfalfa is an excellent perennial pasture, and has special value where the practice is to carry the green feed to the pigs. Where pigs graze on any perennial pastures year after year there is an increased danger from parasites, notably ascarides. The cereals such as oats and barley can be seeded for pasture and fall rye is frequently employed for fall and spring pasture. Rape is perhaps the best choice for fall pasture; it is palatable and persists late into the autumn. There are many other low-fibred green plants, including the tender Russian thistles, which might be profitably cut and carried to growing pigs during the summer season.

Shelters which will afford protection from the summer sun are very important when pigs are allowed to graze. Sunscald, which results from walking through forage wet from dew or rain and then being exposed to the hot sun, causes severe setback in young pigs. Healing of sunscald can be hastened by applying used crankcase oil.

PROTEIN AND MINERAL SUPPLEMENTS

A number of references have already been made to these. Many of the feeds in common use are low in protein and mineral matter, and a ration restricted to the cereal grains would furnish insufficient of these constituents to meet the requirements of growing pigs, pregnant and nursing sows and perhaps other classes. The main consideration in making up a balanced ration for pigs is to incorporate the optimum levels of protein and mineral material. The protein supplements of animal origin, including the milks, tankage, meat meal and fish meal, have demonstrated distinct superiority over the vegetable proteins for pigs.

Skim milk and buttermilk are considered the most complete and best protein supplements. These not only furnish good quantities of protein, but the quality of the protein is high and the quantity and quality of the bone building elements are also favorable. The amounts which should be fed are set forth in foregoing paragraphs. Ration balancing is simplified where adequate amounts of these are available. Skim milk and buttermilk have approximately equal feeding value, and for the benefit of those who purchase either of these for pigs it may be stated that when six pounds of the milk can be obtained at no greater cost than that of one pound of mixed grain, the purchase would seem to be sound economically.



A moveable colony house suitable for spring and summer use.

Tankage and meat meal, high protein by-products of the meat packing industry, are easily obtained in Western Canada, and in the absence of a dairy by-product, would represent the logical choice for supplementing pig rations. The value of the proteins of meat meal is higher than that of tankage, although the lower cost of tankage has contributed to its wider use. The amounts which should be fed have been discussed.

Fish meal has considerable to commend it as a supplement, but its high cost in inland areas will limit its use.

There is much to be said for the principle of mixed protein supplements, and a mixture composed of 50% tankage, 20% fish meal, 20% linseed oil and 10% alfalfa meal, fed at levels ranging from 10% down to 3% would be expected to give better results than the use of any one of these ingredients alone.

MINERAL SUPPLEMENTS

Cereal grains are relatively rich in phosphorus and low in calcium, hence the big need in pig rations is for lime or calcium supplements, and ground limestone has been found to supply this to best advantage. One per cent. of ground limestone might profitably be included in the rations of pregnant and milking sows, and growing pigs, especially those which are not receiving the best allowance of milk or tankage, both of which carry good quantities of the bone building elements. Only the best grade of limestone should be used. In order to permit the best use of the calcium and phosphorus in the feed, it is essential that pigs have access to direct sunshine or receive a carrier of vitamin D such as cod liver oil in their feed. One half to one tablespoonful of crude cod liver oil in the feed daily would be a proper allowance for fall pigs confined to stables during the winter months.

The need for an iodine carrier in the ration of pregnant sows, and a supplemental supply of iron for suckling pigs, has been discussed on other pages. Potassium iodide is the most commonly used carrier of iodine, and dirt sods thrown to the young litters will usually meet the needs for additional iron and prevent anaemia.

Pigs require less common salt than the herbivorous animals like the horse or ox, and more than the carnivorous kind. Extensive experiments at the University of Saskatchewan have shown that between half of one per cent. and one per cent. of salt in the grain of all pigs is adequate. (See Bul. No. 75, The Mineral Needs of Farm Animals).

GRAIN FEEDS

Barley—Forms basis of pig rations in Western Canada. Fattening in tendency. Should be ground to medium state of fineness and fed with protein and mineral supplements. Fibre 5%. Western Feed Unit Value—1.0 (W.F.U. based on net energy or net feeding value).

Wheat—Fattening feed, low in fibre, should be ground coarsely or crushed. The lower grades most appropriate for feeding, and may be extremely useful. Western Feed Unit Value—1.0.

Oats—Unless the hulls are removed from ground oats by sifting, the fibre content is too high for growing pigs. Sifted oat chop (hulls removed) excellent for weanling pigs. May be fed with barley or wheat to older pigs. Fibre 11%. Western Feed Unit Value—0.84.

Rye—Similar to wheat in physical characteristics, but distinctly less palatable. Not a popular feed. Fattening in tendency. W.F.U. Value—1.03.

Corn—Good pig feed, but not often available on Western Canadian markets. Palatable and fattening. High in oil content. Fibre 2%. W.F.U. Value—1.11.

Wheat Bran—Not especially suited to pigs. Rich in phosphorus and laxative in tendency. Fibre 10.5%. W.F.U. Value—0.6.

Wheat Shorts—Good feed for young pigs. Relatively rich in protein. W.F.U. Value—0.81.

Standard Recleaned Screenings—A variable product. Better grades have high percentage of small or broken kernels of wheat and make good pig feed.

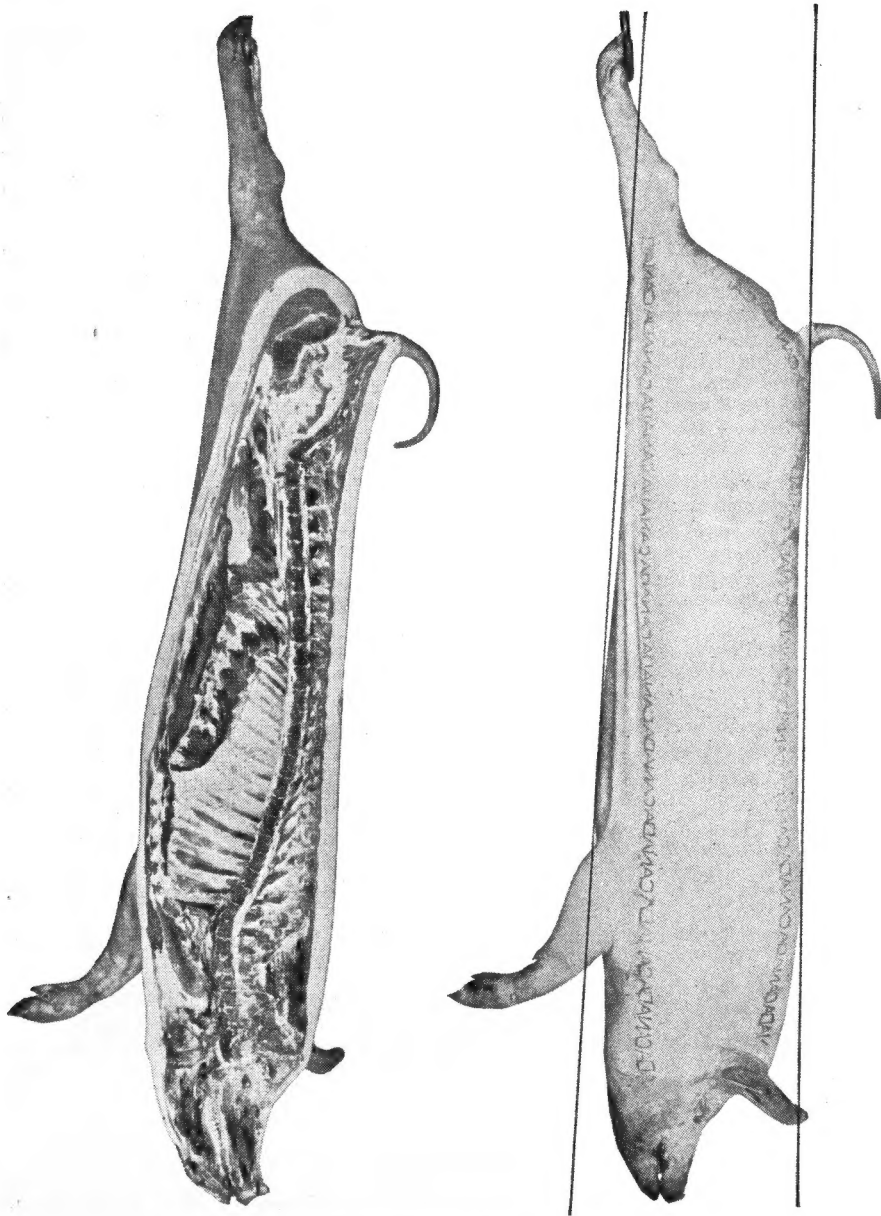
Oat Feed or Oat Hulls—Too high in fibre to have more than very limited use in pig feeding. Fibre 30%. W.F.U. Value—0.47.

Linseed Oil Meal—Rich in protein, but not as suitable for protein supplement for pigs as the supplements of animal origin. Sometimes used to advantage in supplemental mixtures along with animal proteins.

Molasses—Not as appropriate for pigs as for cattle and horses.

PARASITES

Pig lice sometimes give trouble, but probably round worms and the mites which cause mange are the most troublesome. Pigs suffering from mange have rough and scaly skins, and appear restless and itchy. The irritation set up by mange can seriously handicap progress, particularly in the younger pigs, and infected animals will make unprofitable gains. The common treatment consists of applying used crank case oil, either by hand or



Flesh side and skin side of a well-balanced carcass.

by putting the pigs through a dipping vat. In any case treatment should be repeated two or three times at intervals of a week or ten days.

Another and more effective treatment for mange consists of applying the following preparation: Two pounds flowers of sulphur, eight ounces of oil of tar, and one gallon raw linseed oil. These ingredients should be mixed and brought to the boiling point in a water bath (suspend the container with the mixture in a boiler of water and apply heat to the latter until the mixture boils). The mixture can be applied as soon as it is sufficiently cool.

The common round worm (*Ascaris lumbricoides*) is wide spread among Canadian pigs, but is most prevalent where pigs are carried on old runs and paddocks, and where poor sanitation is practiced. The young pigs are most susceptible to the worm attack. The mature worms live in the small intestine, and eggs laid are carried out and dropped with the faeces. When the eggs are picked up by the young pigs, they hatch out, producing tiny grubs which migrate to various parts of the body, notably to the lungs where they remain for a time setting up irritation that may develop into a type of pneumonia. It is at this stage that the organisms do the most damage, and at which time they cannot be dislodged by any kind of vermifuge. Pigs so infected will cough a good deal, and losses may be heavy. After a period of time in the lungs the grubs may be coughed up and swallowed and once back in the intestinal tract they mature and remain throughout the balance of life.

The greatest damage, therefore, is accomplished before there is any chance of dislodging the parasites from the young pigs. There may be an argument for treating the older animals with worm tablets or santonin or other vermifuge, and so remove the source of contamination, but as far as the young pigs are concerned, prevention by sanitation is definitely most practicable. The secret is to prevent the young pigs from obtaining the eggs. A programme of prevention should begin before the sow farrows, and a clean sow in a clean pen constitutes the first requirement. If possible, the young pigs for the first two or three months, should be restricted to new ground or at least to paddocks which have been well plowed since last occupied by pigs.

MARKETING

A remarkable degree of improvement has been evident in Canadian pigs since 1921 when the Dominion Government assumed the responsibility for grading all pigs sold on the public market. The standards set down at that time were changed a little with the passing years but throughout the life of that method of grading, the "select" for which a premium was paid, constituted the highest grade. The "select" pig was one that conformed to approved bacon type and carried optimum finish; in the later years of on-foot grading, the select was required to weigh between 190 and 230 pounds and the premium was \$1.00 per head over "bacons".

Rail grading was introduced and offered to Canadian producers in 1935 and made great progress which was taken to indicate the soundness of the principle. On October 1st, 1940, carcass grading became the official grading method throughout Canada. Accordingly, pigs are now identified by a tattoo mark and sold on a dressed weight and carcass grade basis. It must be apparent that the true carcass merits of a pig will be more clearly evident when the inspector has accurate information about weight, thickness of backfat, proportion of lean meat, thickness of flank, etc., as he will have when the split carcass hangs before him and grading can be accomplished with a greater degree of accuracy and justice.

Weights are taken on the carcasses before they have cooled and the carcass weight includes head, leaf fat and kidneys, tongue, tail and feet. Good bacon pigs dress out approximately 75% of live weight. The producer receives credit for high yielding or high dressing pigs and indeed, all producers of high quality pigs would seem to benefit by rail grading. The carcasses are graded on the abattoir killing floor by government grading inspectors. The carcass grades as laid down by the Dominion Government correspond closely to the live pig grades used previously and both premiums and discounts are on a corresponding basis; grade A carcasses, for example, command a premium of \$1.00 over B1 carcasses.

While bruises are readily seen in the dressed carcass, they are not considered in determining the grade, unless the damage is severe. Likewise, loss due to condemnation of carcasses, is not sustained by the producer. The carcass grades permit both quality and weight divisions; in the case of grades B and C for example, weight classes designated as 1, 2 and 3 are provided. Grades A and B are the bacon grades from which export bacon is drawn; the remaining grades are pork grades. The carcass grades follow.

	<i>Weight Range</i>	<i>Minimum Length</i>	<i>Maximum Shoulder Fat</i>	<i>Maximum Loin Fat</i>
<i>Grade A</i>	140-170 pounds	29 inches	2 inches	1½ inches
<i>Grade B</i>				
Class 1	135-175 pounds	28 inches	2¾ inches	2 inches
Class 2	125-134 pounds	27 inches	2 inches	1½ inches
Class 3	176-185 pounds	30 inches	2¾ inches	2¾ inches
<i>Grade C</i>				
Class 1	135-175 pounds		3 inches	2¾ inches
Class 2	120-134 pounds		2¾ inches	1¾ inches
Class 3	176-185 pounds		3¾ inches	2½ inches
<i>Grade D</i>				
Class 1	135-175 pounds			
Class 2	120-134 pounds			
Class 3	176-185 pounds			

Grade E—Includes unfinished, condemned, damaged, stag and ridgling carcasses.

Lights 119 lbs. and under.

Heavies 186-205 lbs.

Extra Heavies 206 lbs. and over.

Sows:

Class 1 Well fleshed carcasses.

Class 2 Overly fat and very thin carcasses.

The reader's attention is drawn to the carcass illustrations appearing on another page. The sides shown are good examples of the top grade, "Grade A", and represent the kind most desired for export purposes. Special attention is drawn to the uniformity of depth, the freedom from wrinkles, the large proportion of lean meat, ham development and the evenness of the fat covering along the back. The depth of fat over the shoulders is only slightly greater than that over the line indicating a degree of uniformity of much importance.

FIG TESTING

Systematic testing of breeding stock has been practised in Denmark and some other countries for years. The year 1930 marked the beginning of an active programme of pig testing, known as the Advanced Registry Policy, in Canada. It is administered by the Federal Department of Agriculture and restricted to pure bred pigs.

Briefly, the policy represents an attempt to measure the utility of the breeding stock, giving special attention to three considerations: (a) the capacity of the sow to farrow and wean large litters; (b) the ability of the offspring to make rapid and economical gains, and (c) the quality and commercial value of the carcasses. A sow, in order to qualify must wean not less than eight pigs; the four or five pigs nominated for the feeding and slaughter tests must gain sufficiently rapidly to score at least 100 points in "maturity index" and the carcasses must score at least 75 points out of a possible 100 in the slaughter test.

When the policy was inaugurated, the nominated and identified test pigs were fed out on the home farms, but testing stations affording better control and a better test have recently been established in most of the provinces; the Federal Testing Station for the Province of Saskatchewan is located at Saskatoon.

November, 1937.

Reprinted October, 1938, November, 1939, and November, 1940.